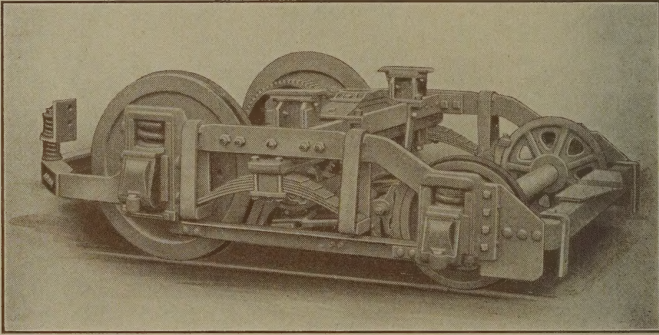


BRILL MAGAZINE



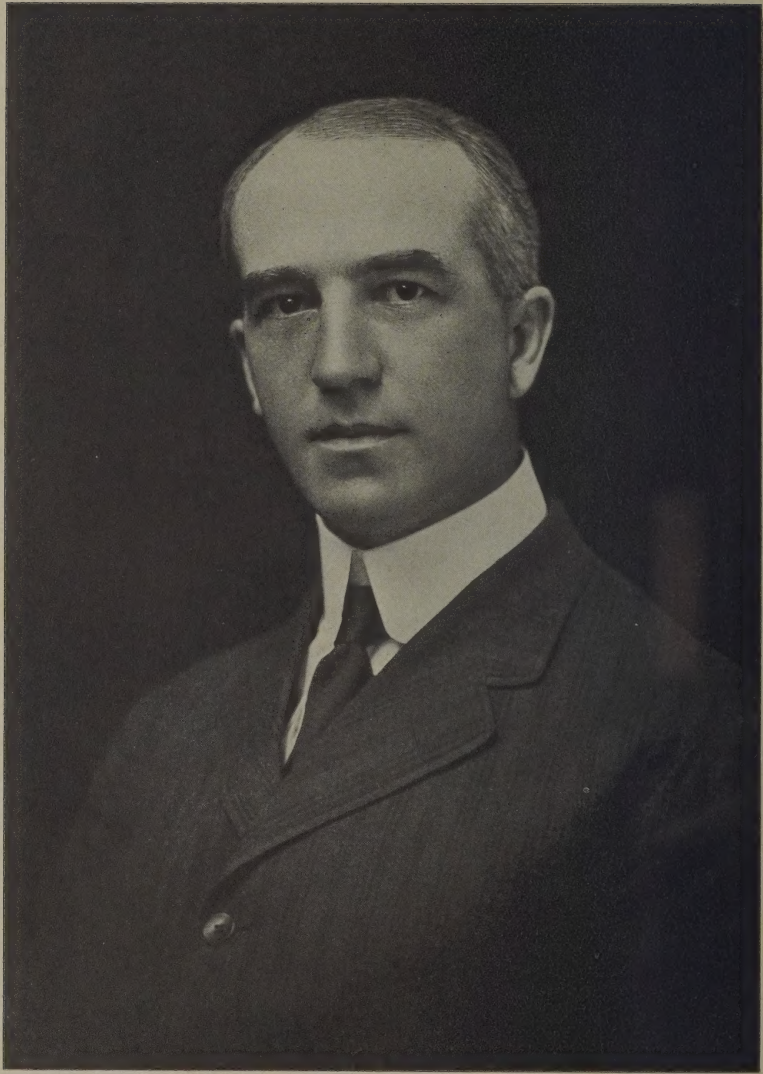
The Bourse
Brussels, Belgium



BRILL NO. 39-E SINGLE MOTOR TRUCK

As long as the rate of fare continues the same and wages and prices of commodities advance there is only one way to maintain the income from your electric-railway property—increase the efficiency of operation. The Brill No. 39-E Truck will help you do that. At less initial expense it will give better and more economical service than more costly equipment. The question of cost you can determine in a few minutes. A service test under your own conditions will convince you of the efficiency of the No. 39-E. Ask about our special trial plan.

THE J. G. BRILL COMPANY
PHILADELPHIA - - - PENNSYLVANIA



P. S. Arkwright



J M Roach



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AUGUST, 1910

No. 8

PRESTON S. ARKWRIGHT

[WITH PORTRAIT INSERT]

PRESTON S. ARKWRIGHT, president of the Georgia Railway and Electric Company, was born February 24, 1871, at Savannah, Ga. At the age of eight he was sent to St. Joseph's Academy at Sharon, Ga., where he began a school career which ended in his graduating from the University of Georgia in 1891. The final year of this period he devoted to the study of law in the university law school. Armed only with his diploma he went to Atlanta and built up a law practice which ten years later brought him prominently before the public in one of the most important legal battles for franchises ever fought in Georgia. Mr. Arkwright was engaged on the side which finally united all the contending interests, including the street railway and electric lighting systems of the city, in the Georgia Railway and Electric Company. For several years prior to the consolidation the street railway had enjoyed neither prosperity nor extreme popularity with the public, and it was necessary to the success of the consolidated enterprises that the management should be capable of satisfying both the public and stockholders. For this task Mr. Arkwright was selected, because he was familiar with the histories of the several companies and their franchises and also because in his law practice he had demonstrated a capacity for thoroughness and earned a reputation for straightforward dealing. He became president at the time of the organization of the company in 1902, and it has continued to grow each year in prosperity and popularity. The company under his administration has become noted for the courtesy of its employees, its excellent service and its fair and liberal treatment of the community it serves.



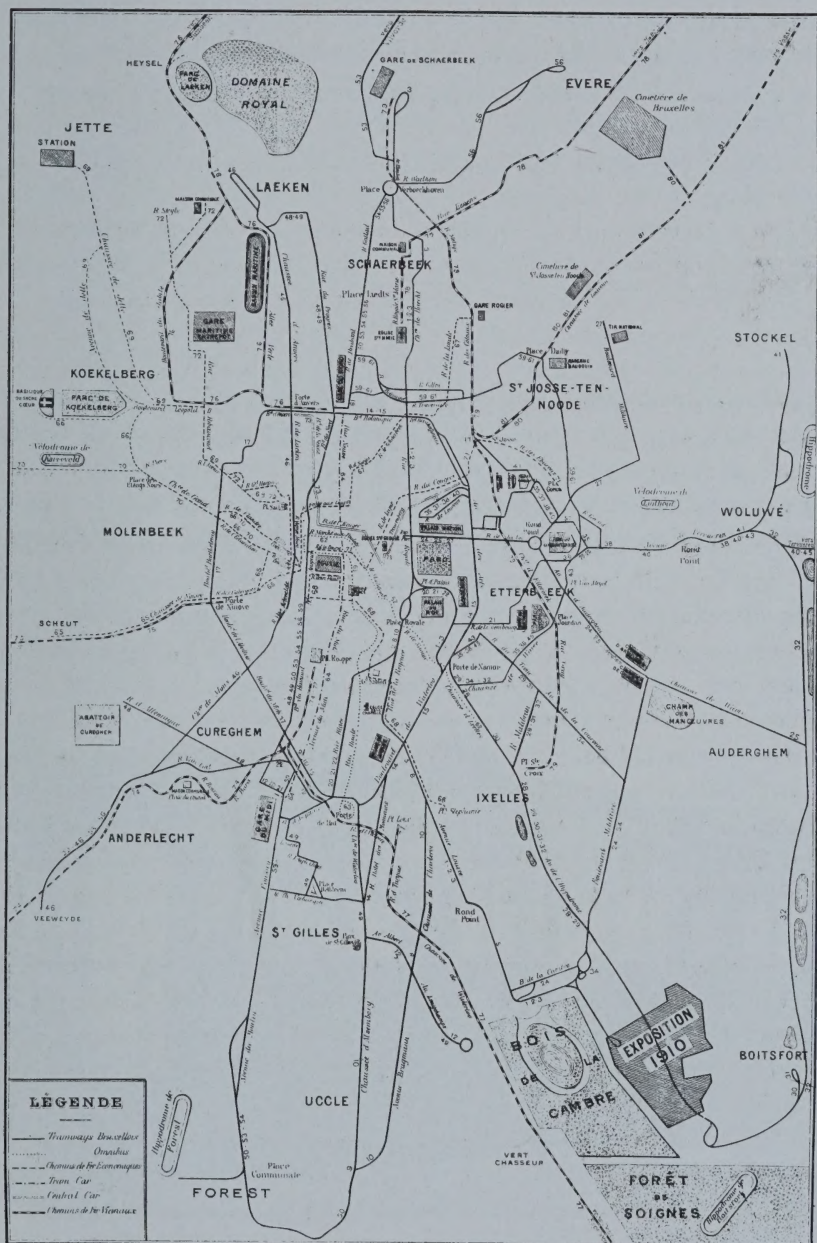
CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE

BRUSSELS, BELGIUM*

BRUSSELS has a population of 700,000 and two tramway companies, the Tramways Bruxellois and the Chemins de Fer Economiques. The Tramways Bruxellois or Brussels Tramway Company has 850 single truck cars with first and second class compartments. Loose plush upholstered cushions are the distinguishing feature of the first class compartment, both compartments being provided with longitudinal seats. There is an extra charge of 5 centimes (one cent) for first class passengers. The rate of fare is based on the section or zone system, the charge for two sections being 10 centimes and for more than two sections 15 centimes. On the Chemins de Fer Economiques there is used a very simple type of car with longitudinal seats. The truck on which the car is mounted is similar to Brill No. 21-E truck and is quite a striking example of the extensive imitation abroad of certain Brill trucks which were not protected by foreign patent rights when the Brill Company first entered the truck field. These imitations are a sincere tribute to the merits of the Brill design and are universally called Brill "Type" trucks. The distinction between a Brill "Type" truck and a truck made by the J. G. Brill Company lies in the high class workmanship and material employed by the J. G. Brill Company which has established Brill trucks as standard throughout the world. The J. G. Brill Company urges managers and engineers in their own interest to differentiate strongly between the trucks made by the J. G. Brill Company and bearing their name plate and shop order number and copies of the Brill truck embodying inferior material and workmanship and sold as the Brill "Type" of truck.

The Brussels Tramway Company uses a variety of trucks some of which are the Brill 21-E type and others a built up type entirely foreign to America, as will be noted from an examination of the ac-

* This is the twentieth in a series of articles, each of which discusses the tramway system of some important city of the world with particular reference to the type of car which is used.

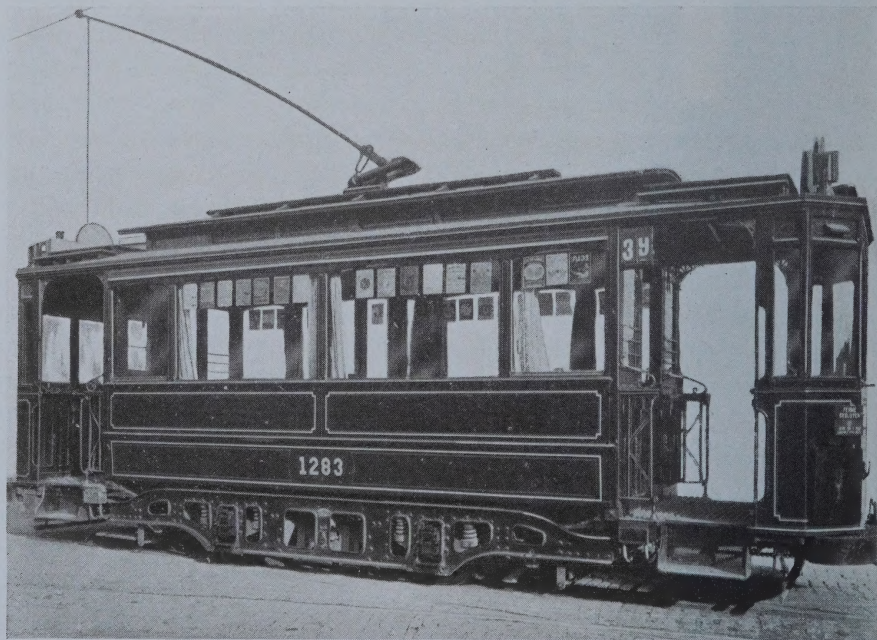


CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE—The Map of Brussels. Showing Steam and Electric and Omnibus Lines

companying engraving. The standard car of the Brussels Tramway Company has the following principal dimensions and features:

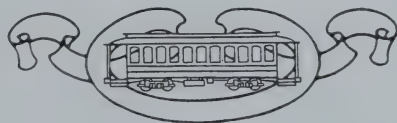
Length over end panels	17 ft. 0 ³ / ₄ in.
Length over platforms	27 ft. 10 ⁵ / ₈ in.
Length over all	28 ft. 10 ¹ / ₂ in.
Width over sills	7 ft. 2 ⁵ / ₈ in.
Weight	
Car body	11,455 lb.
Truck	6,980 lb.
Motors and electrical equipment	8,240 lb.
	<hr/>
Total	26,675 lb.
Motors	Two 60-43 hp.

Ask the manager of nearly any European tramway why the short single truck car such as used in Brussels is best adapted to his requirements and in all probability he will tell you that the frequent stops make it impossible to operate longer cars with only one conductor. This explanation without elaboration means nothing to an American



CONDITIONS WHICH GOVERN THE TYPE OF CAR FOR CITY SERVICE—The Standard Car of the Brussels Tramway Company Has a First and a Second Class Compartment—The Platforms Are Five Feet. Five Inches Long

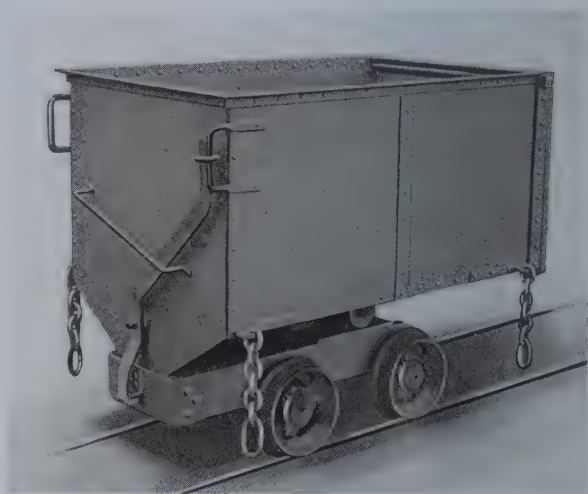
manager who previous to the advent of the prepayment car had been accustomed to operating much longer cars with a single conductor. But the zone system is an important consideration. Under that system of fare collection either of two methods must be employed. A collection of fares must be made at the beginning of each zone as on some interurban lines in this country or a fare receipt must be given when the passenger boards the car, the receipt to be surrendered when the end of the ride is reached. Either method requires more time than the American city practice of collecting a uniform fare of five cents for a ride, regardless of its length. When considering the zone system of fare collection and comparing it with zone operation or interurban lines in this country it should be recalled that the European city zone is much shorter than the American country zone. Furthermore the European tramway rider is characteristically a short haul passenger and consequently stops are frequent and while making a zone collection the conductor must at the same time care for the passengers boarding and alighting and also collect their fares. When the practice of giving a fare receipt is employed, the conductor must punch a ticket indicating the point at which the passenger boarded the car and note the fare paid. He must see that passengers alight at the proper point, thus acting both as collector of fares under a more complicated system than the American and also as an auditor of tickets which passengers hold. It is not known which system of fare collection is employed in Brussels, but as the zone system is in vogue, the explanation that a longer car would require more than one conductor seems like a plausible one.



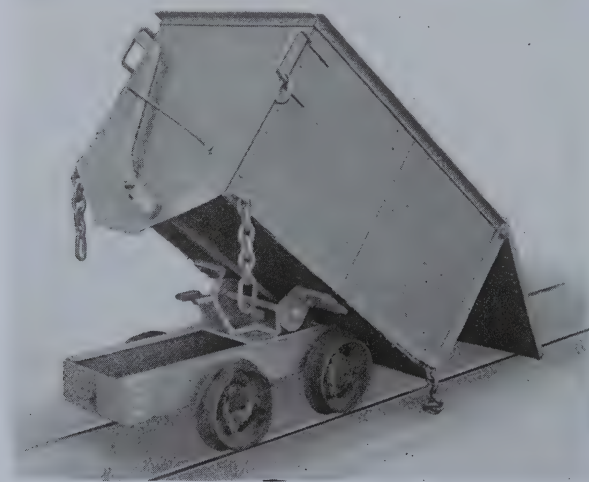
ALL-STEEL MINE CARS FOR MEXICO

THREE-QUARTER YARD CAPACITY

THE plant of the Danville Car Company is equipped to build all-steel cars and included in its output are ore cars for mines. One type of that class of equipment is shown in the accompanying engraving. The cars have been built for several different track gauges and a number of



ALL-STEEL MINE CARS FOR MEXICO—The Car is 41½ Inches High Over All

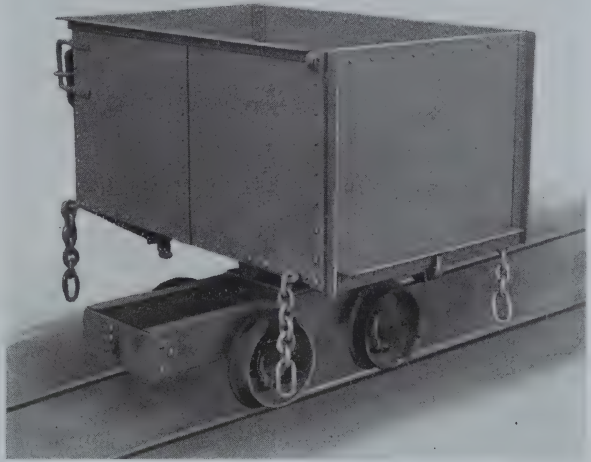


ALL-STEEL MINE CARS FOR MEXICO—The Lever at the Front Latches the Back and Locks the Car Against Dumping in Transit

mines in Mexico. They have a capacity of approximately three-quarters of a yard each, the car body measuring 24 by 48 by 30 in. inside. The sides, end and door of each car are made of $\frac{1}{8}$ -in. steel plate and the floor is $\frac{1}{4}$ -in. plate. The principal reinforcing is steel angles. The door at one end for emptying the cars

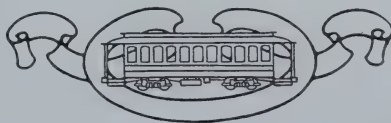
is hinged at the top and provided with a latch at the bottom. At the other end to secure the cars against dumping while in transit there is a lever which can be locked in position by a ring.

The truck frame is made from steel channels and plate and the steel hopper which is mounted on it is pivoted so that the hopper can be turned on the frame and emptied on either side of the track or at the back. Both the vertical and horizontal pivots are located in the same plane $1\frac{1}{2}$ in. back of the center of the car as a safeguard against accidental dumping. The cars are provided with simple chain couplers at all



ALL-STEEL MINE CARS FOR MEXICO—The Car Can Be Turned to Dump at Either Side or the Back

four corners and with all necessary grab irons. When built for track not exceeding 20-in. gauge the cars have had an 18-in. wheel base and 10-in. gray cast iron wheels which have screw caps and an oil reservoir. With this running gear the measurement from top of rail to top of car is $41\frac{1}{2}$ in. The car shown in the engravings in condition for shipment weighed 680 lb. The net weight is slightly less.



SINGLE-END PAY-AS-YOU-ENTER-CARS

EQUIPMENT FOR WICHITA, KANSAS

FOUR single-end 28-ft. closed Pay-As-You-Enter cars which have recently been completed by the American Car Company for the Wichita Railway & Light Company of Wichita, Kansas, exhibit a rear platform arrangement of rather unusual type. Each platform which has the standard Pay-As-You-Enter feature is unvestibuled, but has a conductor's cab. The cab extends from the step to the entrance doorway and encloses the exit at the rear as well as the exit portion of the step opening at which there is a two section folding door under control of the conductor. The conductor's cab is fitted with drop sash for convenience in collecting fares, which



SINGLE-END PAY-AS-YOU-ENTER CARS—The Golden Oak Interior Finish With Border Inlay and the Rattan Upholstered Seats Make an Attractive Interior

in this case is done with a Brill No. 2 fare box. The arrangement protects the conductor from the elements, reduces the weight of the rear platform considerably and has advantages in case smokers are allowed to stand on the platform.

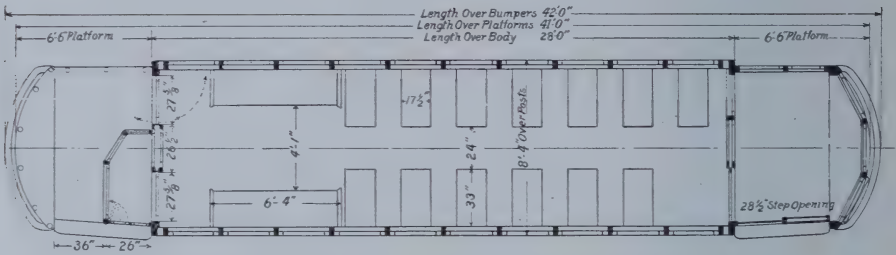
The front platform is the same length as the rear platform, 6 ft. 6 in. but is entirely vestibuled. The sliding door at the step exit is next to the bulkhead of the car instead of at the front of the platform, an arrangement which has both advantages and disadvantages. Its location with respect to the exit door in the front bulkhead provides a plan of "easy access" and affords more protection to the motorman from drafts when the door is open.

On the other hand the drafts have more direct passage into the car. The location of the step exit it appears also makes it more difficult for the motorman to see when the step is clear.

The seating capacity of each of the Wichita cars is 34 persons, there being 13 transverse and 2 longitudinal seats arranged as shown in the accompanying floor plan. The seats are upholstered in Brill woven rattan, the management having adopted that long wearing and sanitary seating material in preference to carpet or imitation leather. The interior finish of the cars is golden oak with inlaid border line. The ceiling is simply decorated three-ply birch veneer. The curtains



SINGLE-END PAY-AS-YOU-ENTER CARS—Fares Are Collected With A Brill Fare Box—A Two-Panel Folding Door Closed the Step Exit



SINGLE-END PAY-AS-YOU-ENTER CARS—There is an Easy Access Arrangement of Doors at the Front

are pantasote on spring rollers and push buttons are placed on each post. The windows have lower drop sash and fixed upper sash.

The underframing includes side sills $4\frac{1}{2}$ by $6\frac{7}{8}$ -in. plated with 15 by $\frac{3}{8}$ -in. plates and $5\frac{1}{4}$ by $6\frac{7}{8}$ -in. white oak end sills. The body framing has corner posts $3\frac{3}{4}$ -in. thick and side posts $3\frac{1}{4}$ -in. thick. The sweep of the posts is $1\frac{3}{4}$ -in. The principal dimensions of the cars are as follows:

Length of body over end panels	28 ft. 0 in.
Length over platforms	41 ft. 0 in.
Length over buffers	43 ft. 0 in.
Width of body at sill including panels	8 ft. $1\frac{1}{2}$ in.
Width over posts above rail	8 ft. 4 in.

The cars are mounted on Brill No. 27-G trucks which have 33-in. wheels. The Brill special equipment includes, in addition to the four-till fare boxes, angle iron bumpers, brake handles, drawbars, gongs and signal bells.



SINGLE-END PAY-AS-YOU-ENTER CARS—Both the Rear and the Front Platforms Are Somewhat Unusual in Arrangement—The Car is Mounted on Brill No. 27-G1 Trucks

EQUIPMENT FOR THE HAWAIIAN ISLANDS

FIFTEEN-BENCH OPEN CARS

AN export shipment of cars 47 ft. long requires consideration of the design and construction with respect to the dismantling and packing for ocean transportation. Wherever possible the sills are made continuous and if necessary are shipped on deck. But the sides, roof and other parts which extend from end to end of the car are usually made in two or three sections.



EQUIPMENT FOR THE HAWAIIAN ISLANDS—The Cars Were Dismantled and Packed in Well Constructed Cases

The 47 ft. cars for Honolulu, however, had the sides, which were 34 ft. 6 in. long between centers of corner post, shipped in a single section, four sides to a box as shown in an accompanying engraving.

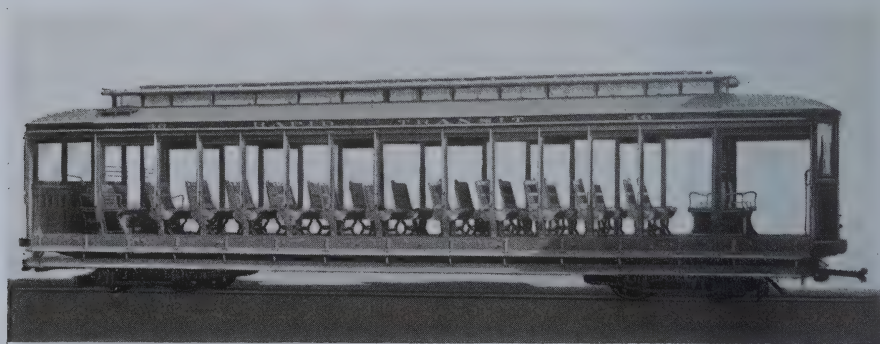
The cars in question were ten in number and were 15-bench center aisle open cars on Brill No. 39-E trucks. They have both vestibules and bulkheads with drop sash and against each bulkhead are two fixed benches. The remaining 11 benches are reversible. The measurement between vestibule and bulkhead is 5 ft. 6 in. inside at the center of the car, giving ample exit and entrance room at the ends when all

of the benches along the side are filled with seated passengers and crowding through to the aisle is so objectionable. Near the middle of the car two of the posts are spaced 3 ft. 9 in. center to center as against 2 ft. 7 in. elsewhere providing an entrance and exit aisle at that point also.

The cars are built for 4 ft. gauge track and have the following dimensions and features:—

Length of car body between centers of corner posts	34 ft. 6 in.
Length of car body between vestibule corner posts	43 ft. 7 in.
Length of car over buffers	47 ft. 0 in.
Width over sills	7 ft. 9 in.
Width over posts and seats	8 ft. 6¼ in.
Height from floor to center of monitor	8 ft. 2½ in.
Seating capacity	60 persons
Weight	
Car body less electrical equipment	26,455 lb.
Trucks less gears	5,100 lb.

The driving wheels of the No. 39-E trucks on which the cars are mounted are 33 in. in diameter and the cars have double running boards. The posts of the car are ash and the inside finish is cherry and ash. The ceiling has carline finish with the alternate poplar and basswood board showing, the poplar boards being stained cherry. The Brill Winner reversible seats have ash frame and spindle backs and seats with alternate cherry and ash slats. Each seat is 2 ft. 11½ in. long over all and the center aisle is 2 ft. 1 in. wide. Push buttons are provided on each post.

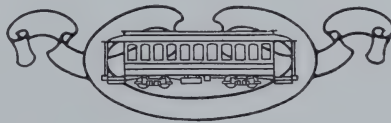


EQUIPMENT FOR THE HAWAIIAN ISLANDS—There Were Ten Cars of the Fifteen-Bench Double Running Board Type Shown Above Which Were Shipped to Honolulu



EQUIPMENT FOR THE HAWAIIAN ISLANDS—The Seating Capacity of Each Car is Sixty Persons—The Aisle is 25 Inches Wide and Affords Ample Standing Room

The end walls or bulkheads have windows which drop flush with the framing. The passageway between the vestibule and the car has a pantasote curtain. There are also pantasote curtains extending from the water table to the floor. The underframing comprises 7-in. I-beam side sills with yellow pine fillers and white oak crossings and crown-pieces.



CARS FOR THE NORTHERN OHIO TRACTION & LIGHT COMPANY

SUBURBAN EQUIPMENT

SIX suburban cars for the Northern Ohio Traction & Light Company show a number of unusual features. The most conspicuous of the innovations comprehended in the design of the cars is in the window arrangement. By omitting the usual letter panel and utilizing the space for arched-top sashes which span each pair of windows, a greater height is secured for the windows. The arched-top sashes, it will be understood, are for appearance only,



CARS FOR THE NORTHERN OHIO TRACTION AND LIGHT COMPANY—One of a Lot of Six—Mounted on Brill No. 27-M.C.B. Trucks

and are not seen from within the car. The practice, followed by all builders in connection with cars having the twin-window plan, of placing low windows under the long arched sashes, has the serious objection of darkening the interior. The arched-top sashes are almost invariably covered with curtains; even if the curtains are raised their full height, comparatively little light is admitted through the art glass with which these sashes are glazed. Besides reducing the light, the low windows limit the outlook of passengers and cut off almost entirely the view of those who may be compelled to stand in the aisle. In the window design of the car illustrated, the graceful effect of the arched-top twin-window arrangement is secured to the exterior without sacrificing light and view.

Another of the special features is the side construction. A 30 by $\frac{5}{16}$ -in. steel plate reinforced with angles at top and bottom and extending the full length of the car body, constitutes the principal side member. The plate is covered by a truss plank made of boards of full length sections, tongue-and-grooved and glued together and bolted



CARS FOR THE NORTHERN OHIO TRACTION AND LIGHT COMPANY—Smoking Compartment Seating Sixteen Passengers

to the plate after a thick paste of white lead whiting is applied. Over this plank is placed the outer sheathing of tongue-and-grooved poplar boards, glued and nailed securely. The builders devised this construction to avoid the usual side wall trusses and braces which are bulky and reduce the interior width of the car. In this case $5\frac{1}{2}$ in. was saved.

Particular attention was given to secure the most sanitary conditions possible and to this end all carvings, grooves and small recesses were eliminated from the interior woodwork; the aisle is covered with in-

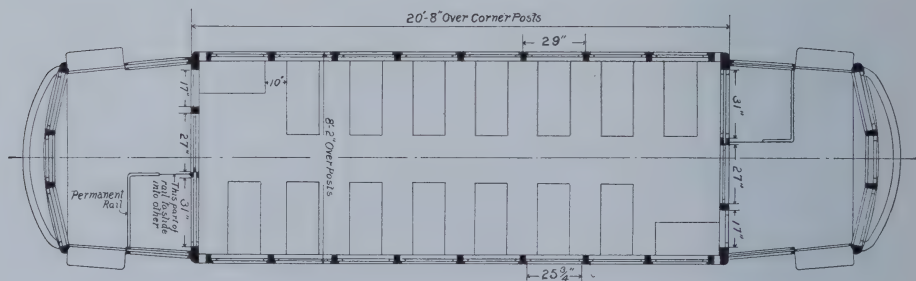
terlocking rubber tiling, $\frac{3}{8}$ -in. thick. A single marble slab 2 in. thick and set in cement forms the floor of the toilet room. The slab is recessed and is provided with a drain outlet. The walls are entirely covered with enamelled metal and the room is provided with a disinfectant and globe ventilator.

The plate glass in the door of the partition which separates the two compartments and in the end and vestibule, is brought down to 22 in. from the floor, adding much to the attractiveness of the car. Passengers have the advantage of an unusually open view ahead, the windows being cut low for that purpose. The floor of the motorman's cab is covered with a perforated rubber mat. A folding theater chair is placed on the right side for use of inspectors or officials. Air blasts are used in place of signal bells. Among the items of Brill manufacture are seats, automatic vestibule door controllers and bumpers.



PREPAYMENT CARS FOR MEXICO EQUIPMENT FOR CHIHUAHUA

CHIHUAHUA is the first city in Mexico to adopt the Pay-As-You-Enter car. The initial shipment for the progressively managed property in that city of which Sr. Enrique Creel is the president, was four 20 ft. 8 in. Brill patented semi-convertible cars built by the Danville Car Company and mounted on Brill No. 21-E trucks. The cars which were constructed under



PREPAYMENT CARS FOR MEXICO—The Cars Are Operated in the Usual Pay-As-You-Enter Manner
Part of the Equipment of Each Car is a Brill Fare Box

license from the Pay-As-You-Enter Car Corporation are shown in accompanying engravings and are an interesting example of the adaptation of the prepayment plan to short cars for roads in the smaller cities.

Instead of having an entrance and exit door in each bulkhead there are single sliding doors at both ends placed at one side of the center line of the car body as shown in the floor plan. The platforms are entirely vestibuled and have single sliding doors on both sides and at



PREPAYMENT CARS FOR MEXICO—The Single Sliding Platform Doors Are Under Control of the Conductor and Motorman

both ends in order to provide for double-end operation of the cars. The mechanism of these doors is so arranged that the doors are under control of the motorman or conductor. By establishing the practice of leaving at the front of the car it is expected that operation with the cars will be facilitated in the same manner as with Pay-As-You-Enter cars having the standard arrangement, a feature which has been one of their decided advantages. Aside from that, however, the cars effect the prepayment of fares and with the use of the Brill No. 2 far box with which each car is equipped it is anticipated that a marked increase in volume of fare receipts will be shown compared with the other cars in service.

One feature of the plan of the cars which is worthy of note is the seating arrangement. The location of the doors makes it possible to obtain maximum seating capacity, no seating room being sacrificed to

secure the Pay-As-You-Enter arrangement. The 14 transverse seats and two longitudinal seats will accommodate 32 passengers. The interior finish of the cars is cherry with birch veneer ceilings and rattan upholstered Brill Winner seats. The use of the Brill semi-convertible window system with its low window sills and both window sashes



PREPAYMENT CARS FOR MEXICO—The Interior Finish is Cherry and Brill Winner Seats Are Used—The Location of the End Doors is Due to the Use of the Prepayment Plan

raising into the roof pockets to give the full window opening, make the cars well adapted to the climate in which they will be used.

Each car as before stated is mounted on a Brill No. 21-E truck having a 7-ft. 6-in. wheel base and 33-in. rolled steel wheels. The principal dimensions of the car body are as follows:

Length of car body over end panels	20 ft. 8 in.
Length over platform crownpieces	32 ft. 1 in.
Length of each platform	5 ft. 8½ in.
Width of car at sill including panels	7 ft. 9½ in.
Width of car over posts above belt	8 ft. 2 in.

ONE-MAN PAY-AS-YOU-ENTER CARS

TWO-MOTOR OPEN CARS

IN BRILL MAGAZINE for December, 1909, a description was published of some single truck one-man Pay-As-You-Enter cars for Brunswick, Georgia. The City & Suburban Railway Company for which the cars were built has just added to its equipment two more one-man prepayment cars of a different type. As far as the arrangement for one-man operation is concerned the cars have the same construction and as the Pay-As-You-Enter arrangement is generally



ONE-MAN PAY-AS-YOU-ENTER CARS—The Brill No. 39-E Trucks On Which the Car is Mounted Each Carry a 30 h. p. Motor

familiar to all electric railway men and as it has been recently described in these pages, it will suffice to say that the front platform is used entirely for entrance and exit and the rear platform is closed on both sides with folding gates which are locked. The prepayment plan includes the use of a Brill portable fare box.

The two new cars are considerably longer than the single truck cars delivered some time ago and are mounted on Brill No. 39-E single motor trucks. They show the following principal dimensions and features:

Length of car body over end panels	26 ft. 1 in.
Length over crown pieces	39 ft. 3 in.
Length of each platform	6 ft. 7 in.

Width over sills, including plates	8 ft. 9 $\frac{1}{4}$ in.
Seating capacity	40 persons
Weight, including trucks and electrical equipment	28,700 lb.

For the present the cars will be operated as open cars, but they have been built with a center aisle and, as necessarily entrance and exit is at the end because of the use of the prepayment plan, the construc-



ONE-MAN PAY-AS-YOU-ENTER CARS—The Cars Are Built So That They Can Be Equipped With Removable Window Sash and Panels Between Posts

tion provides for removable sections between posts which will make the cars convertible into either open or closed cars at will. In this respect the cars will be like those recently built by The J. G. Brill Company for the Third Avenue Railroad, New York City, which were described in BRILL MAGAZINE for May, 1909.

The Brill No. 39-E trucks on which the cars are mounted have a 4-ft. 6-in. wheel base, 33-in. driving wheels and 21-in. pony wheels. Each truck carries a Westinghouse 30 hp. motor. The trucks are built for standard gauge track.

BRILL MAGAZINE

Published on the fifteenth
of each month by the

PUBLICITY DEPARTMENT OF THE J. G. BRILL COMPANY

In the interests of The J. G. Brill Company, American Car Company, John Stephenson Company, G. C. Kuhlman Car Company, Wason Manufacturing Company, Danville Car Company, Compagnie J. G. Brill.



LAST month in discussing some present problems in car construction reference was made to the question of the type of roof. Since that time we have endeavored to focus through our sales and engineering departments opinions regarding the comparative desirability of plain arch roof construction and the existing standard monitor roof. Our salesmen were asked whether they had encountered in their calls on electric railway officials any sentiment for or against the arch roof. Our engineers and car designers at the various plants were asked for an expression of opinion on the structural questions involved. Though answers favoring the arch roof were anticipated the preponderance of sentiment in behalf of the arch roof was quite surprising. The reports from the salesmen indicated quite conclusively that for two or three years past there has been a constantly growing tendency on the part of railway officials and engineers to seriously

consider the arch roof. This tendency has been largely developed by the discussion of light weight cars which has disclosed the fact that there is a saving in weight by the use of the arch roof. The saving in weight while amounting to not more than 200 or 300 lbs. under extreme conditions is yet enough, under the present frame of mind of electric railway engineers and managers, to secure the adoption of the arch roof—for we firmly believe that it is to be generally adopted in the near future. Nevertheless, there are other arguments for the arch roof, as the following summary will show.

1. The arch roof is lighter than a monitor roof and secures a saving in weight and hence a saving in operating expense.
2. A car with arch roof costs slightly less than one with monitor roof.
3. The arch roof construction is stronger than monitor roof construction.
4. Stronger construction and the elimination of many parts used in the monitor roof makes the maintenance expense of the arch roof a small item.



AS against these arguments for the arch roof the principal objections advanced are the appearance and the possibility of being unable to obtain satisfactory ventilation. Personally we look upon the argument of

appearance as one with practically no weight. An opinion of what is best looking changes like the styles and were all of the cars to-day to have arch roofs and the question of monitor roofs to be brought up a hue and cry would be raised about spoiling the appearance of the graceful arch. Any sentimental feeling for the appearance of the monitor roof may be explained on the basis of custom. The question of ventilation is a more serious one. With a growing demand from the public for clean, sanitary cars it is essential that ventilation be secured superior to that obtained by the present deck sash ventilators, because for some time past that system of ventilation has proven inadequate even when given proper attention by the platform men. As far as the application of improved systems of ventilation to cars with monitor roofs are concerned, those systems which involve forced circulation have unquestionably shown themselves to be most satisfactory and it is reasonable to expect that forced circulation is the coming thing in electric railway car ventilation. If such is the case even the objection to the arch roof car of inability to ventilate properly may be exploded, for certainly there is nothing in the arch roof construction which makes forced circulation ventilation impossible. Even without forced circulation the arch roof car is not unfeasible from the standpoint of ventilation, as some recent construction indicates.

IN connection with the argument of appearance of the arch roof one salesman brought up the question of the attitude of the public towards the feature, which aside from its weight as an argument for or against the arch roof was an interesting reflection of the feeling of the manager of nearly every electric railway that his every action with relation to the public must be carefully considered with respect to its probable effect as a creator of good will. Now manifestly it should make no difference to the travelling public whether a monitor deck or an arch roof were used on a car, provided comfort, convenience and other things which affect his welfare are equal. Yet it is entirely within a reasonable conception of contingencies to foresee the possibility of the citizens of some community finding in the change of design of equipment food for argument that the grasping traction monopoly was endeavoring to economize to the detriment of the equipment and the comfort of its passengers. This would be particularly likely to occur if the ventilation of the car with arch roof was not superior to the ventilation of the car with monitor roof which had previously been in service. The feminine patrons might be as ready to taboo the cars because of their appearance as they have in Philadelphia to complain of the Pay-Within car because the present styles in millinery make it uncomfortable for them to use the longitudinal seat instead

of the transverse seat formerly used. Yea, a public service corporation is now a public service corporation even unto the extent that it must cater to the aesthetic sensibilities of its patrons rather than the financial welfare of its own stockholders.



THERE are a number of economists of reputation who tell us that the increased cost of living, which is not entirely national but world-wide, is due to the overproduction and hence the depreciation in value of gold. These scholars back up their assertions with figures showing how rapidly the world's supply of gold is increasing and with facts regarding the cost of mining, smelting and other processes by which gold is reduced to a refined state, all of which tend to show that a gold dollar costs about 47 cents. They then produce figures from Bradstreet's and other authorities based on the average wholesale price of 96 commodities to show that in the past 13 years from July 1, 1896, to January 1, 1910, the cost of living has advanced more than 61 per cent.; that in the past 18 months it has advanced $19\frac{1}{2}$ per cent.; in the past year 11.2 per cent. and in the past four months prior to January, 1910, 7.4 per cent. These two conditions they link together with the economic law which John Stuart Mill first enunciated

that "The value of money is inversely as general prices—falling as they rise and rising as they fall." Following the train of argument it is asserted that "prices will continue to rise; wages and salaries will rise only half as fast as prices; interest rates will average abnormally high; the cost of operating railroads and street railways will advance rapidly while rates and fares will advance slowly if at all."* The contention that the overproduction of gold is responsible for this condition can be proven quite convincingly, yet every electric railway manager is willing to concede what Mr. W. H. Glenn of the Georgia Railway and Electric Company has pointed out, that "in reality, the fare of to-day is only one-half of that collected twenty years ago, for in that length of time the price of almost everything entering into the cost of street railway transportation has increased 100 per cent. Lumber that was bought then for \$10 per 1000 feet is now \$28; steel rails that were bought then for \$24 per ton are now \$42, and a ton does not go half so far; copper, once at twelve cents per pound has lingered around twenty cents for the past few years, and has gone as high as twenty-six cents. In 1898 day laborers could be employed for seventy-five cents per day, while in 1907 they received \$1.50 per day and their work was not nearly so satisfactory. Twenty years ago such things as damage claims were almost unknown,

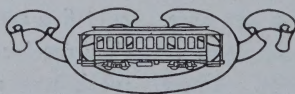
*D. W. Holt "Too Much Gold" Everybody's, April, 1910

while to-day they appear in hordes, consuming from 5 to 15 per cent. of the gross revenue of the companies. In like manner all other costs have increased; yet all this time the fare of five cents has remained the same, while five times as good service has been given at an increased cost to-day of 100 per cent. over what the same service could have been furnished for twenty years ago." In addition to these facts regarding the increased cost of operation, the electric railway manager knows that because of a similar increase in the cost of the things entering into the living expenses of his employees, it has been necessary to increase wages. In all probability also he has found it necessary to increase the interest rate on the later issues of his bonds. Now, because all these conditions parallel so closely the things which the economists tell us are the result of the over-production of gold, let us accept their dictum of what must be expected in the future. The question then becomes one of how, continually rising prices, wages and interest rates are to be met. There are only two ways that they can be met—by increasing rates of fares or decreasing operating expenses. As

far as increased rates of fare are concerned, the economists tell us that "rates and fares will advance slowly, if at all." Accordingly decreasing operating expenses is the only solution. And with prices of materials constantly advancing only the most capable and most highly trained men will be able to secure the necessary decrease through efficiency in every department.



WE will gladly describe and illustrate any feature of car or truck construction in which the readers of BRILL MAGAZINE may be interested and shall be glad to receive inquiries and suggestions for articles on pertinent subjects. The columns of BRILL MAGAZINE are at all times open to communications dealing with the operation or construction of cars and trucks. Detailed specifications of the cars described in BRILL MAGAZINE or additional information can be obtained by addressing Publicity Department, The J. G. Brill Company, Philadelphia.



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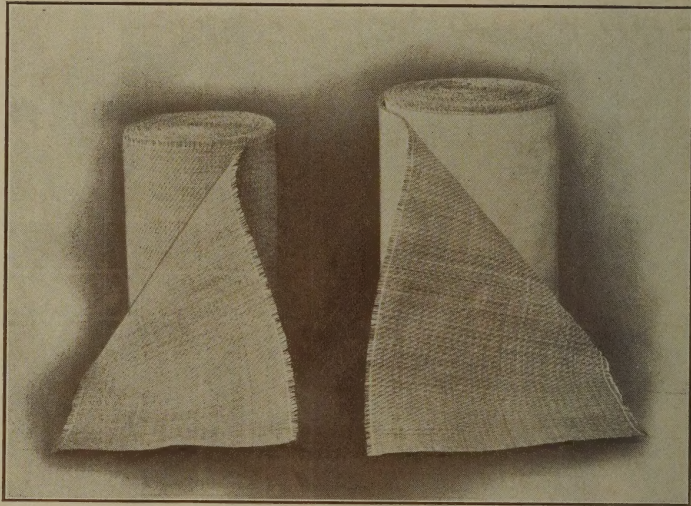
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